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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/415,781 10/08/99 LQBAL

Z 050-99-037

EXAMINER

IM22/0504

ALLIEDSIGNAL INC
LAW DEPARTMENT-M/S 36-2-76000
2525 WEST 190TH STREET
TORRANCE CA 90504-6099

DOVE, T

ART UNIT

PAPER NUMBER

1745

DATE MAILED:

05/04/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/415,781

Applicant(s)

Iqbal et al.

Examiner

Tracy Dove

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8 Oct 1999
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8-11, 13-15, and 18-20 is/are rejected.
- 7) ☒ Claim(s) 6, 7, 12, 16, and 17 is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

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DETAILED ACTION

Drawings

The formal drawings were received on 11/19/99. These drawings are approved by the Examiner.

Specification

The disclosure is objected to because of the following informalities: on page 1, line 4 the specification states "serial number _____". An application number must be indicated.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-4, 8 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 states "the metal plate is formed with aluminum", which is unclear. The claim should clearly state the metal plate comprises aluminum.

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Claims 3, 4 and 14 recite "the coating", which is unclear. It appears the claims should state "the overcoating". If Applicant intended to claim the electrically conductive coating includes graphite, the two coating, as claimed, do not appear to be patentably distinguishable.

Claim 8 recites "graphite flakes which have been processed through an intercalation process". It is unclear what Applicant is intending to claim.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321© may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-20 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-39 of copending Application No. 09/415,466. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of both applications are directed toward

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bipolar plates for fuel cells having a first electrically conductive coating formed thereon. A second overcoating is formed on the first coating and is electrically conductive.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

Claims 1, 3-5, 8-11, 13-15 and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Toshiaki et al., JP 57105974.

Toshiaki teaches a light-weight interconnector (bipolar plate) with increased conductivity. The interconnector has grooves (flow fields) and is coated with a mixture of binder and graphite (emulsion/suspension). The coating is thermal and chemical resistant. The graphite may be finely granulated graphite (exfoliated). Note Fig. 4 which shows an interconnector 28 having a substrate 26 of light-weight material (metal plate), a metal layer 24 (coating) and a conductive cover 27 (overcoating). Conductive cover 27 is thermal and chemical resistant and includes

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graphite. See abstract and page 3, col. 2, lin 3-18. Graphite material is conductive. Thermoset and thermoplastic binders are known to be hydrophobic.

Thus the claims are anticipated.

Claims 1, 2, 9-11, 13 and 18-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Spear et al., US 6,051,331.

Spear teaches a fuel cell having bipolar separators and an electrode membrane assembly (EMA). The bipolar separators are constructed of metal, typically aluminum, copper, stainless steel, niobium or titanium. If desired, the metal is coated for corrosion resistance. See col. 4, lin 10-17. The anticorrosion and conductive layer is titanium nitride (conductive coating). See col. 5, lin 13-17. The EMA is coated on both sides with a mixture and overlain on each side with a 10 mil thick 65% open graphite paper having a Teflon hydrophobic binder therein. See col. 3, lin 54-64. The bipolar separators sandwich the EMA therebetween. The bipolar plates include microgroove fluid distribution channels. See col. 3, lin 29-39. When the cell is assembled the graphite layer (overcoating) is adjacent the anticorrosion layer. Graphite is conductive.

Thus the claims are anticipated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 8, 9, 13-15, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Faita et al., US 5,578,388.

Faita teaches a bipolar plate formed of aluminum, titanium or alloys thereof. See abstract. The bipolar plates may be of both the grooved and flat type. See col. 8, lin 59-60. The bipolar plates may be coated with an electroconductive protective film, for example made of platinum group metals or oxides thereof. Alternatively the protective film may be made of conductive polymers of the type comprising intrinsically conductive materials such as plastic materials containing conductive powders such as graphite powder. See col. 10, lin 29-37.

Faita does not explicitly teach the bipolar plate is coated with a first electroconductive layer and then coated with a second layer containing graphite.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because Faita teaches that coating the bipolar plates with an electroconductive film or a conductive material such as plastic materials containing graphite powders is known in the art. The skilled artisan would have known that the coatings could be used together to further protect the bipolar plates from corrosion. Both coating layers are taught by the prior art and it is considered obvious to combine two elements of a single reference which are known to be used for the same purpose.

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Allowable Subject Matter

Claims 6, 7, 12, 16 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the claims are directed toward a bipolar plate having an electrically conductive coating and an overcoating containing graphite. The overcoating is a graphite foil and includes porosities that are filled by the coating.

The prior art does not teach the overcoating of the claimed invention. Spear teaches a bipolar plate having a graphite paper layer. Faita and Toshiaki teach an overcoating of a graphite emulsion/suspension.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Li et al. 5,624,769 teaches a bipolar plate made of aluminum having a coating of a metal and an overcoating of titanium nitride. See col. 3, lin 17-26.

Dahlberg 4,344,832 teaches bipolar plates of graphite or metal coated with graphite. See col. 2, lin 48-49.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is (703) 308-8821. The Examiner may normally be reached *Monday-Thursday from 8:00 AM - 6:30 PM*. My supervisor is Gabrielle Brouillette, who can be reached at (703) 308-0756. The Art Unit receptionist can be reached at (703) 308-0661 and the official fax number is (703) 305-3599.

May 2, 2001


GABRIELLE BROUILLETTE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700